

FEBRUARY 1980

No. 2



# FISHING INFORMATION

Southwest Fisheries Center-La Jolla, California



**noaa**

NATIONAL OCEANIC AND  
ATMOSPHERIC ADMINISTRATION

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**U.S. DEPARTMENT OF COMMERCE  
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NATIONAL MARINE FISHERIES SERVICE**

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# **FISHING INFORMATION**

**FEBRUARY 1980, No. 2**



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# PREFACE

This publication, Fishing Information, appears monthly and contains 1) fishery advisory information, 2) a narrative description of pertinent surface temperature conditions, 3) charts of winds and pressures for the eastern North Pacific, 4) charts of sea surface temperature for the North Pacific and eastern tropical Pacific, and 5) charts of subsurface temperature structure in the eastern North Pacific.

A supplement to Fishing Information appears at 15-day intervals throughout the year. It contains a chart of sea surface temperature (contoured at 2°F (1°C) intervals) from Baja California to Vancouver Island out to about 135°W. Special bulletins are published in conjunction with the 15-day sea surface temperature charts which include short-term projections of albacore distribution and locations of productive fishing areas, information on oceanographic and atmospheric conditions, and other information as is appropriate during the albacore fishing season.

To cancel delivery of this publication in the event you no longer need to receive it, or to change the delivery address if you are moving but still need to receive it, please notify us by writing: James A. Renner, Editor, Fishing Information, National Marine Fisheries Service, Southwest Fisheries Center, P. O. Box 271, La Jolla, California 92038.

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ENVIRONMENTAL CHARTS ANALYZED BY:

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R. Dobinson at Cape St. James Light;

R. W. Moe at Kains Island Light;

M. V. Stewart at Amphitrite Point Light

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### Eastern North Pacific

During February the Aleutian low pressure center is normally near 55°N, 175°W (Figure 1), and the eastern Pacific high pressure center is near 30°N, 130°W. Storm systems usually intensify between 35°N and 45°N and move eastward with strong surface winds, heavy rains and wide bands of cloudiness. Cooling in the ocean surface layer occurs along the storm paths where wind mixing and a minimum of solar heating usually reduce sea surface temperatures (SST's) to minimum values.

In February 1980 the Aleutian low pressure center was displaced almost 600 nautical miles south of its normal position. Surface pressures were as much as 18 millibars below normal east of the low center. The eastern Pacific high pressure system was weaker than normal and displaced approximately 650 nautical miles southeast (Figure 2) of its normal position. The entire central Pacific between 20°N and 50°N was dominated by the displaced Aleutian low circulation. This situation developed in January but became more pronounced in February when, at times, the eastern Pacific high pressure system was almost non-existent.

As a result of the unusual wind and weather patterns over the Pacific, SST's in the eastern Pacific showed no well organized ocean frontal boundary (strong north-south temperature gradient) north of 30°N (Figure 3). East of 140°W, the area south of 40°N covered by SST's more than 1°C above normal decreased slightly in size from January. However, this very large area of positive SST departures, extending southwestward from Baja California (Figure 5), was a major contributing factor in storm intensification off the Baja and southern California coasts during January and February. Low latitude storms approaching the west coast apparently intensified over the relatively warm water and brought heavier rains to Southern California and Baja than would normally be expected. Also, unseasonably good albacore tuna and other sports fishing developed off the west coast south of 35°N partly due to a wind driven northward transport of warm water in the surface layers. The southward moving colder California Current usually dominates coastal waters during the winter months. SST's along the entire North American coast and extending southwest to Hawaii were 1 to 3°C higher in February 1980 than in February 1979 (Figure 7).

In the 20 years that Fishing Information has been published there has never been two successive winter months with such persistent and large SST positive departures from normal and differences from the previous year as have occurred in the first two months of 1980. The elongated area with SST's more than 1°C below normal west of 145°W and south of 40°N (Figure 5) was larger than in January 1980. The more southerly shift of the pattern of negative SST departures during January and February was due primarily to the southward displacement of the Aleutian low pressure system and storm tracks. Between 25°N and 35°N west of 150°W, SST's were considerably colder in February 1980 than a year ago. Stronger wind mixing of the ocean surface and the heavy cloud cover associated with prolonged

southerly storm tracks were major contributing factors to the large yearly SST differences in Figure 7.

#### Western North Pacific

During February the western Pacific high pressure system was displaced south of 30°N and the North Pacific low pressure system was the dominant circulation feature from 30°N to 60°N. This condition prevailed in January 1980 also. The north Pacific ocean front east of Japan was not as well defined as in January (Figure 4). This was due, in part, to the large area of SST's more than 1°C above normal east of northern Japan, and the below normal SST's along the east coast of central Japan (Figure 6). This apparent reversal in the SST departure patterns began in January because of rapidly changing weather patterns which caused more variability in winds over the coastal waters along Japan. The pattern of negative SST departures from normal south of 35°N changed very little from January to February. In the area east of 150°E and south of 30°N ocean wind mixing continued to be greater than normal because of the low latitude penetration of strong westerly surface winds and storm systems. Normally, higher pressure, lighter winds and less cloud cover would prevail over the area with SST's more than 1°C below normal south of 30°N.

#### Eastern Tropical Pacific

During February SST's normally decrease less than 1°C south of 30°N in the northern hemisphere. Along the equator, between 5°N and 5°S, and in the Peru Current north of 20°S, SST's normally increase 1 to 2°C. The equatorial ocean front along the equator between Ecuador and the Galapagos Islands is usually weaker in February than during any other month. In periods of unusual ocean warming the equatorial ocean front will often be absent along the equator and along the coast of Ecuador to about 5°S.

In February 1980 the SST pattern in the northern hemisphere (Figure 8) reflected stronger north-south SST gradients around 25°N, west of 150°W, than in any other part of the eastern Pacific, except along 20°N south of Baja California. The large area north of Hawaii with SST's more than 1°C below normal (Figure 8) developed where storm tracks and heavy wind mixing penetrated the subtropical Pacific farther than usual. To the east of the Hawaiian Islands the very large region with SST's 1 to 2°C above normal (Figure 9) has persisted for several months. Between the large areas of negative and positive SST departures from normal, SST gradients have been markedly stronger than normal west of 150°W. South of Baja, SSTs were below normal partly due to the southeastward displacement of the Pacific high pressure center. This probably caused more than usual displacement of the cooler California Current water south of 25°N along the Baja coast. However, west of 115°W the weak high pressure system failed to generate the usual strong northeast trade winds. Therefore, below normal wind mixing combined with some northward transport of warmer tropical water ahead of weather fronts kept SSTs above normal. The relatively warm water west of Baja provided additional heat energy to intensify low latitude storms off the west coast. Most of the tropical Pacific had above normal SSTs during January and February. This situation is not expected to change during the next three months. East of 110°W in the northern hemisphere SSTs did not reflect the usual seasonal cooling except in the Gulf of Tehuantepec and west of Nicaragua where ocean upwelling was aided by several periods of strong northerly winds from the Gulf of Mexico.

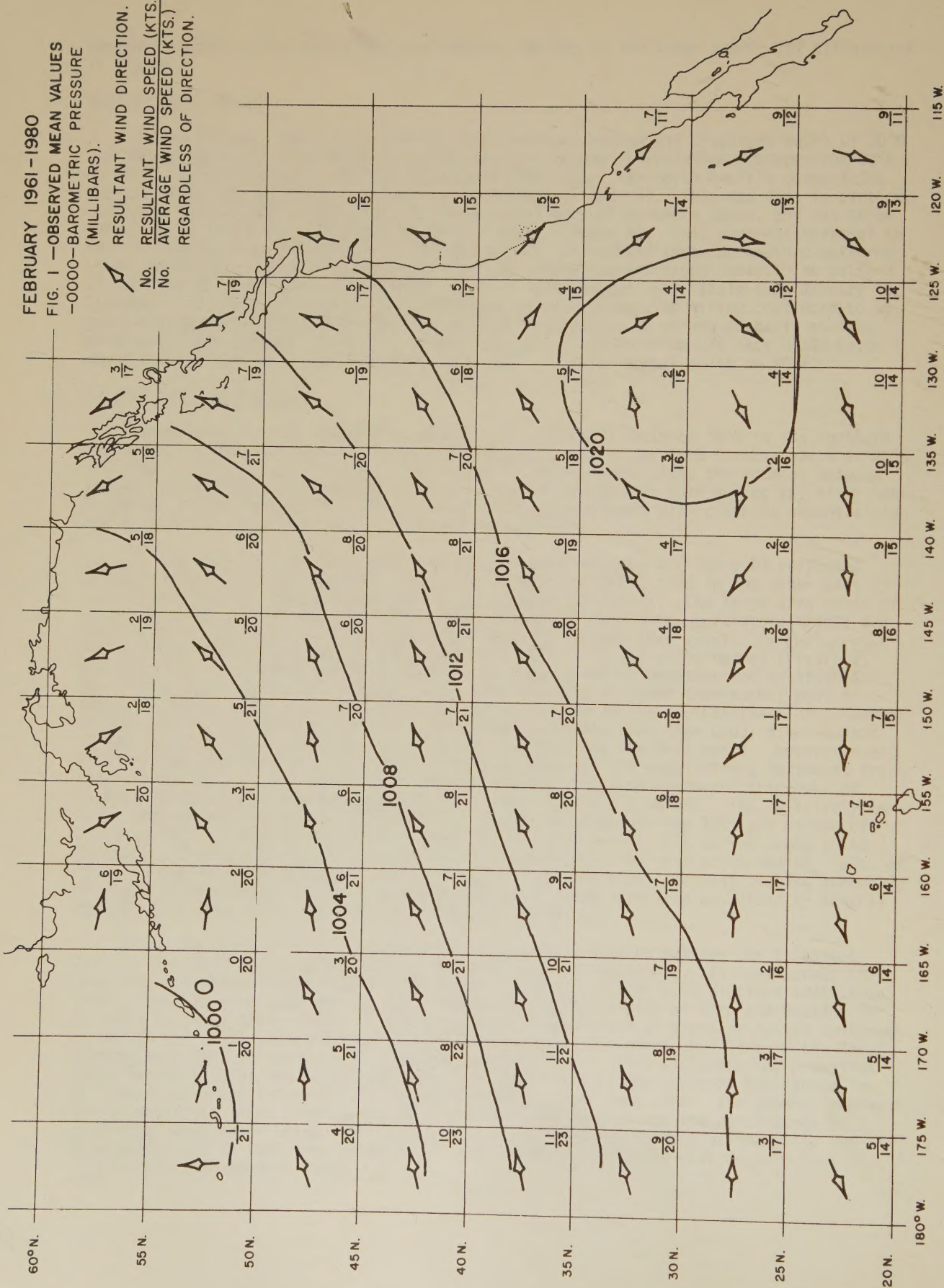
Along the coast of Peru north of 15°S and near the equator between the Galapagos Islands and 85°W, above normal warming has been progressing slowly. In these areas SSTs have been 1°C above normal for several months. However, there is no distinct indication that a rapid El Niño type warming will invade the coastal region of Peru and Ecuador for at least the next three months. If the southern hemisphere high pressure system continues to weaken and shift westward frequently, ocean mixing and coastal upwelling in the Peru Current will tend to remain weak along the coast of Peru. This situation has prevailed since November 1979; and if it continues into mid-winter in the southern hemisphere, an El Niño of moderate intensity will probably develop after June 1980. The general weakness in the southeast trade winds along the coast of South America and the persistence of pockets of warm water between 80°W and 90°W has made coastal fishing undependable and frequently poor in 1980 from Colombia to Peru. However, offshore west of 85°W tuna fishing has been good at times.



# FEBRUARY 1961-1980

FIG. 1 - OBSERVED MEAN VALUES  
-0000-BAROMETRIC PRESSURE  
(MILLIBARS).

RESULTANT WIND DIRECTION.  
No. No.  
RESULTANT WIND SPEED (KTS.)  
AVERAGE WIND SPEED (KTS.)  
REGARDLESS OF DIRECTION.



# FEBRUARY 1980

FIG. 2 — OBSERVED VALUES

— 0000 — BAROMETRIC PRESSURE  
(MILLIBARS).

RESULTANT WIND DIRECTION.



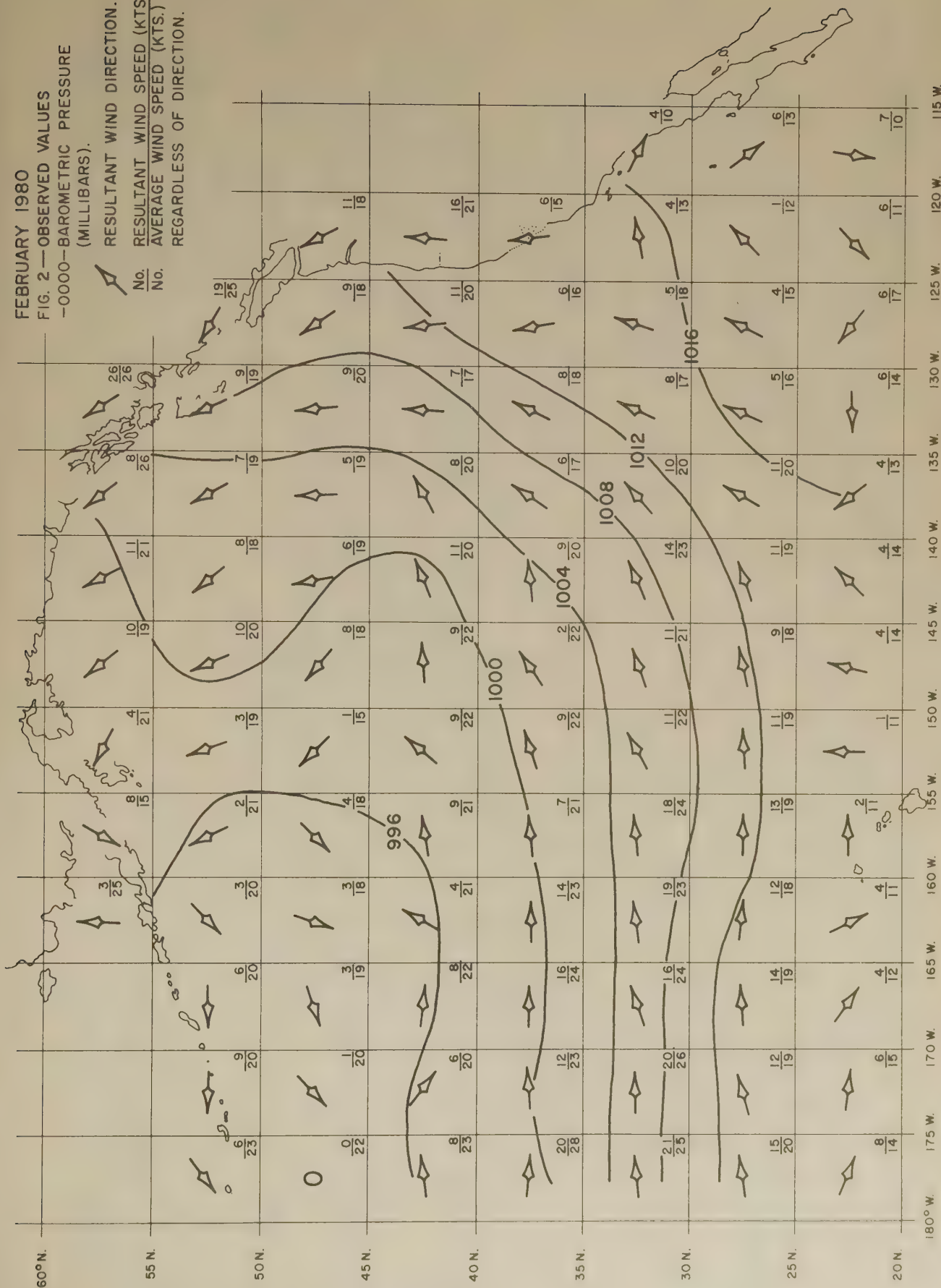
No.

No.

RESULTANT WIND SPEED (KTS.)

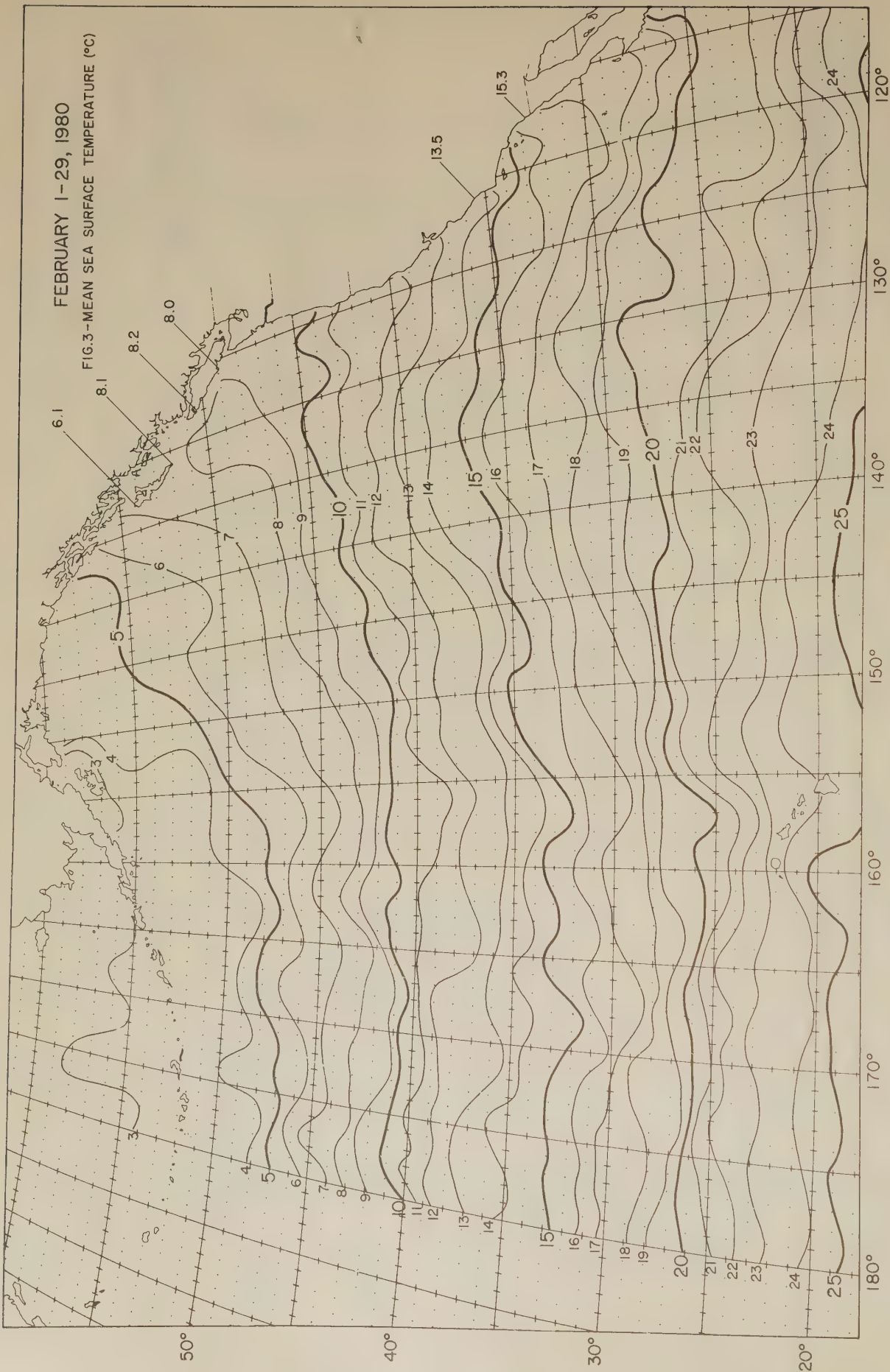
AVERAGE WIND SPEED (KTS.)

REGARDLESS OF DIRECTION.



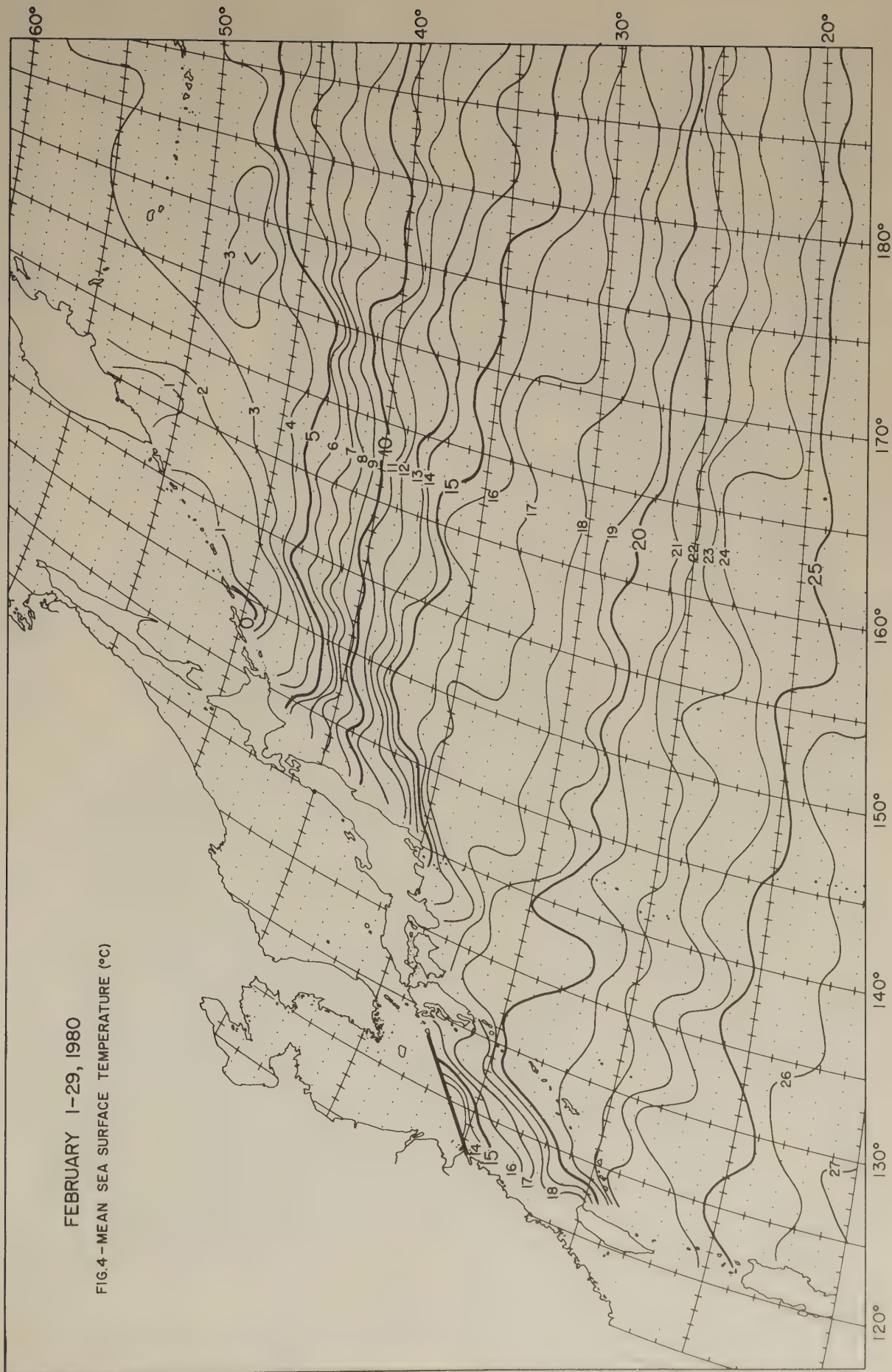
FEBRUARY 1-29, 1980

FIG. 3--MEAN SEA SURFACE TEMPERATURE (°C)



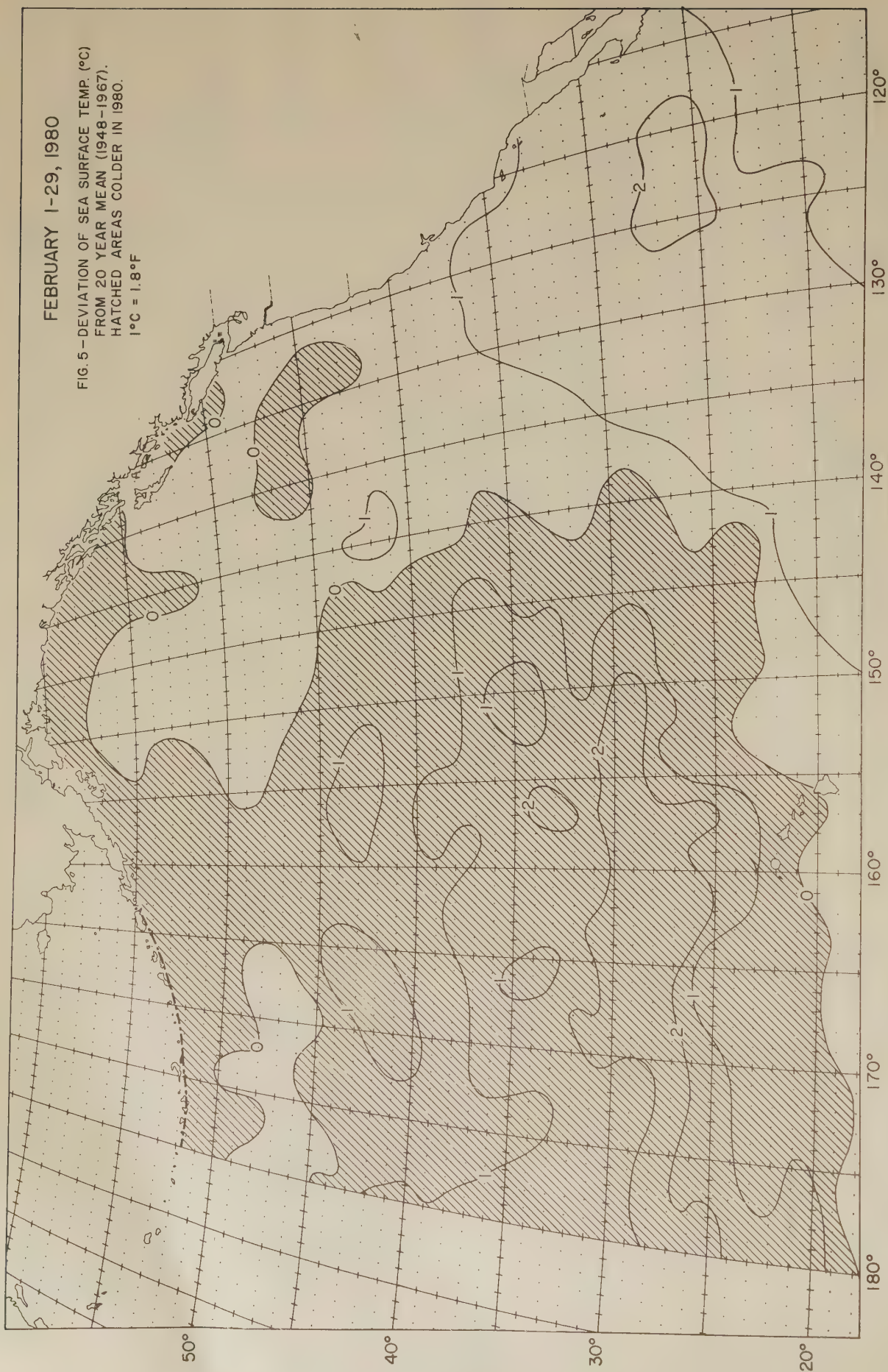
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FIG.4 - MEAN SEA SURFACE TEMPERATURE (°C)



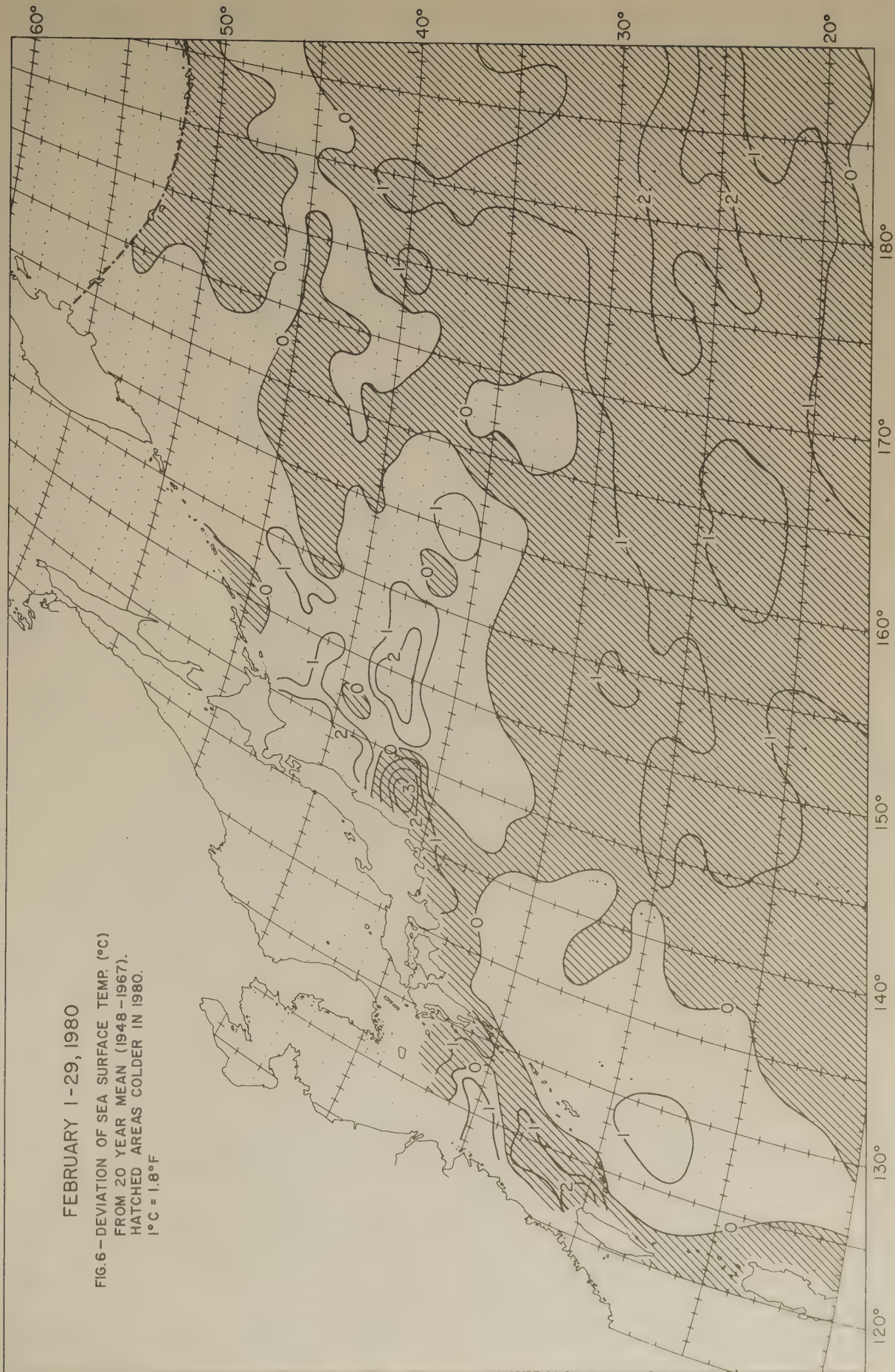
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FIG. 5—DEVIATION OF SEA SURFACE TEMP. (°C)  
FROM 20 YEAR MEAN (1948-1967).  
HATCHED AREAS COLDER IN 1980.  
1°C = 1.8°F



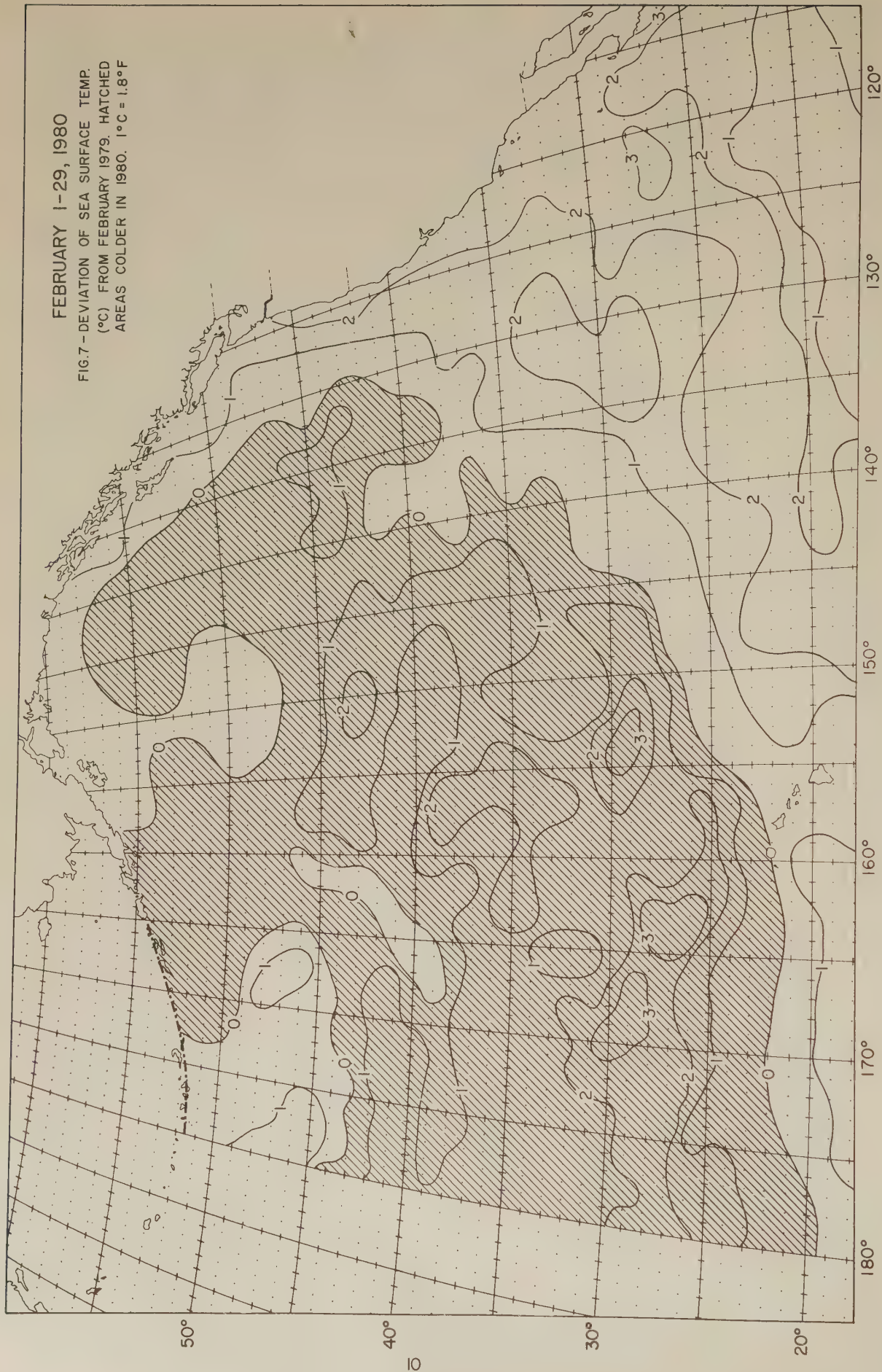
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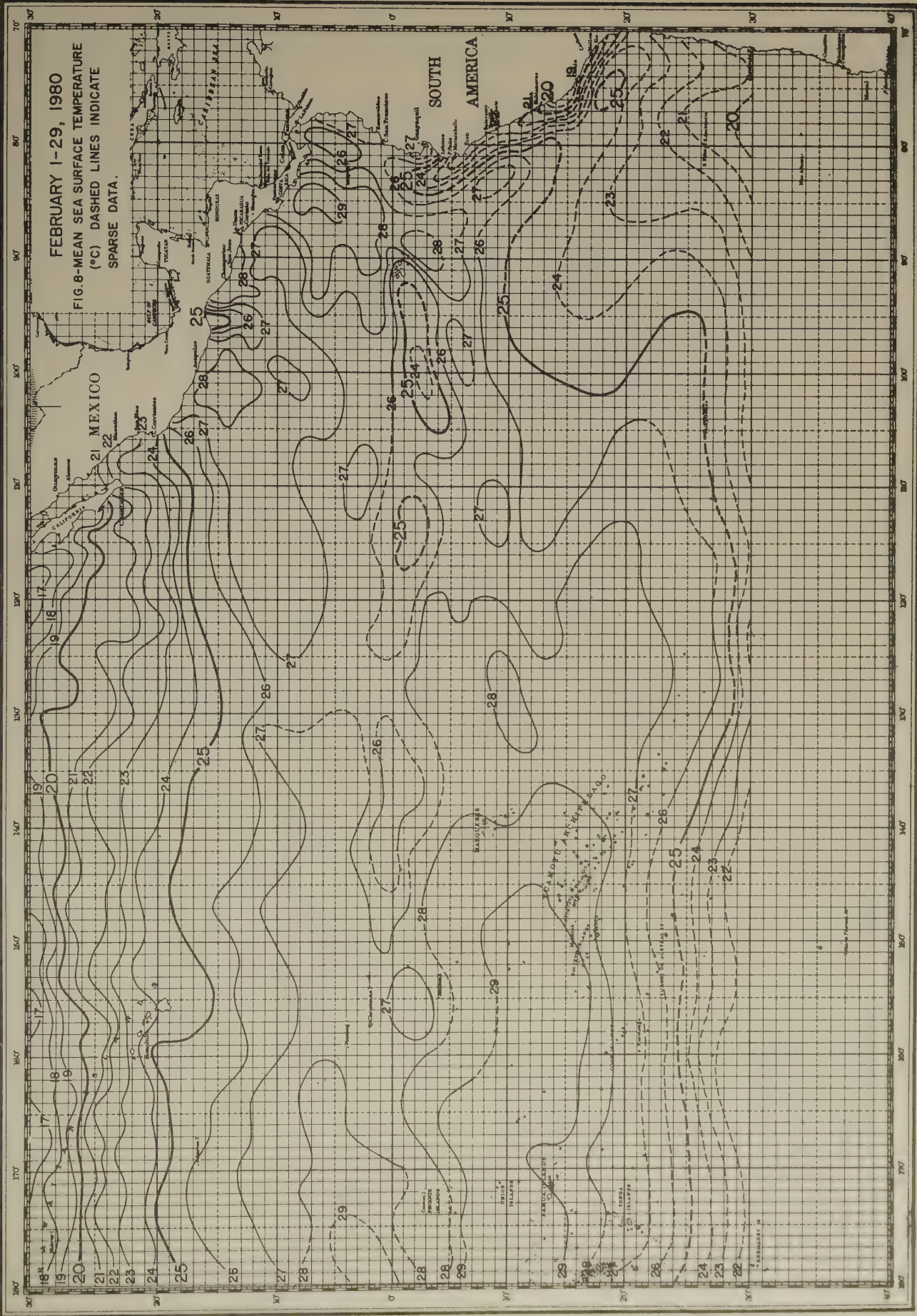
FIG. 6—DEVIATION OF SEA SURFACE TEMP. (°C)  
FROM 20 YEAR MEAN (1948-1967).  
HATCHED AREAS COLDER IN 1980.  
1°C = 1.8°F

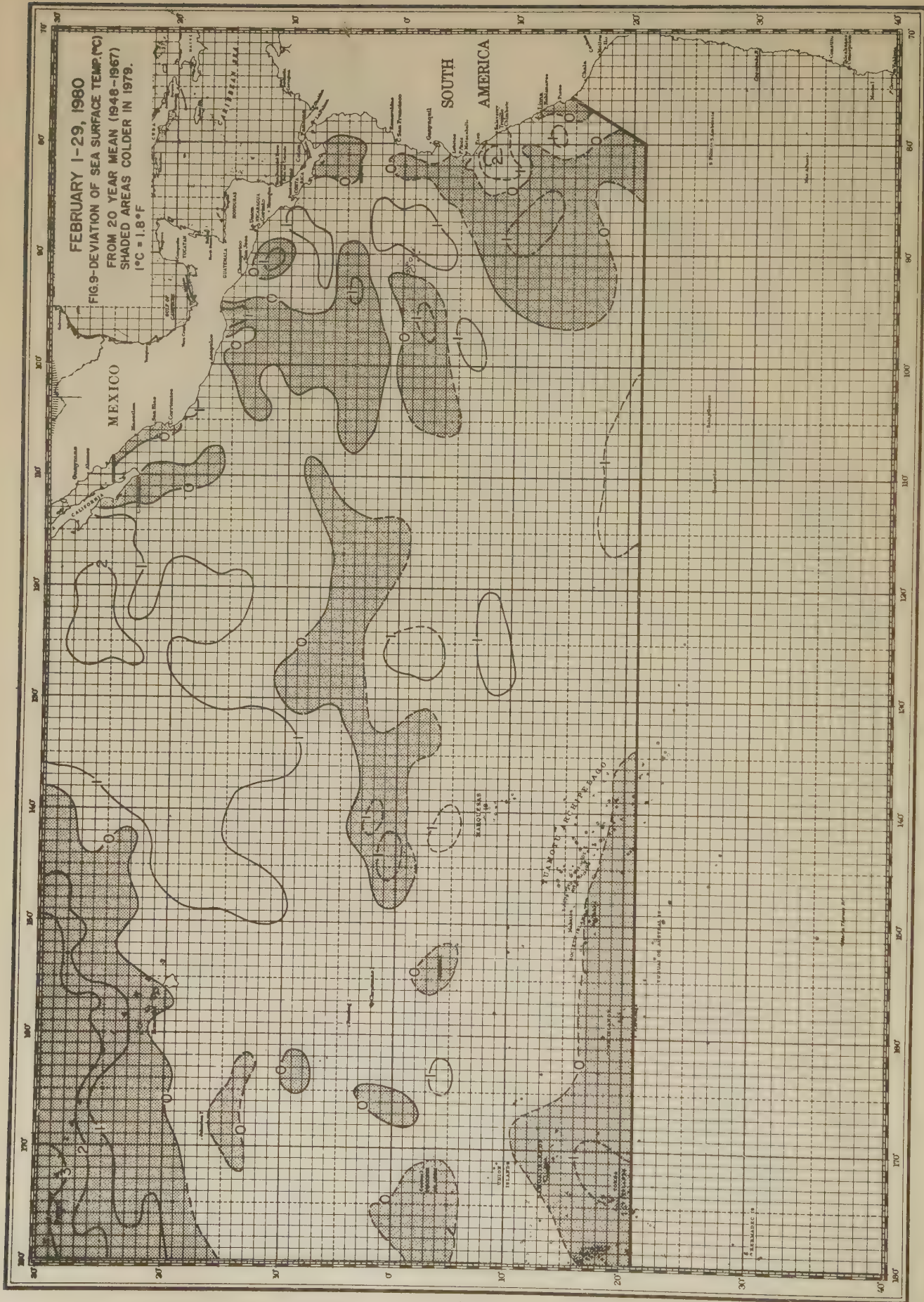


# FEBRUARY 1-29, 1980

FIG.7 - DEVIATION OF SEA SURFACE TEMP.  
(°C) FROM FEBRUARY 1979. HATCHED  
AREAS COLDER IN 1980. 1°C = 1.8°F











# FISHING INFORMATION - supplement

SEA SURFACE TEMPERATURE °F.  
FEBRUARY 1-15, 1980

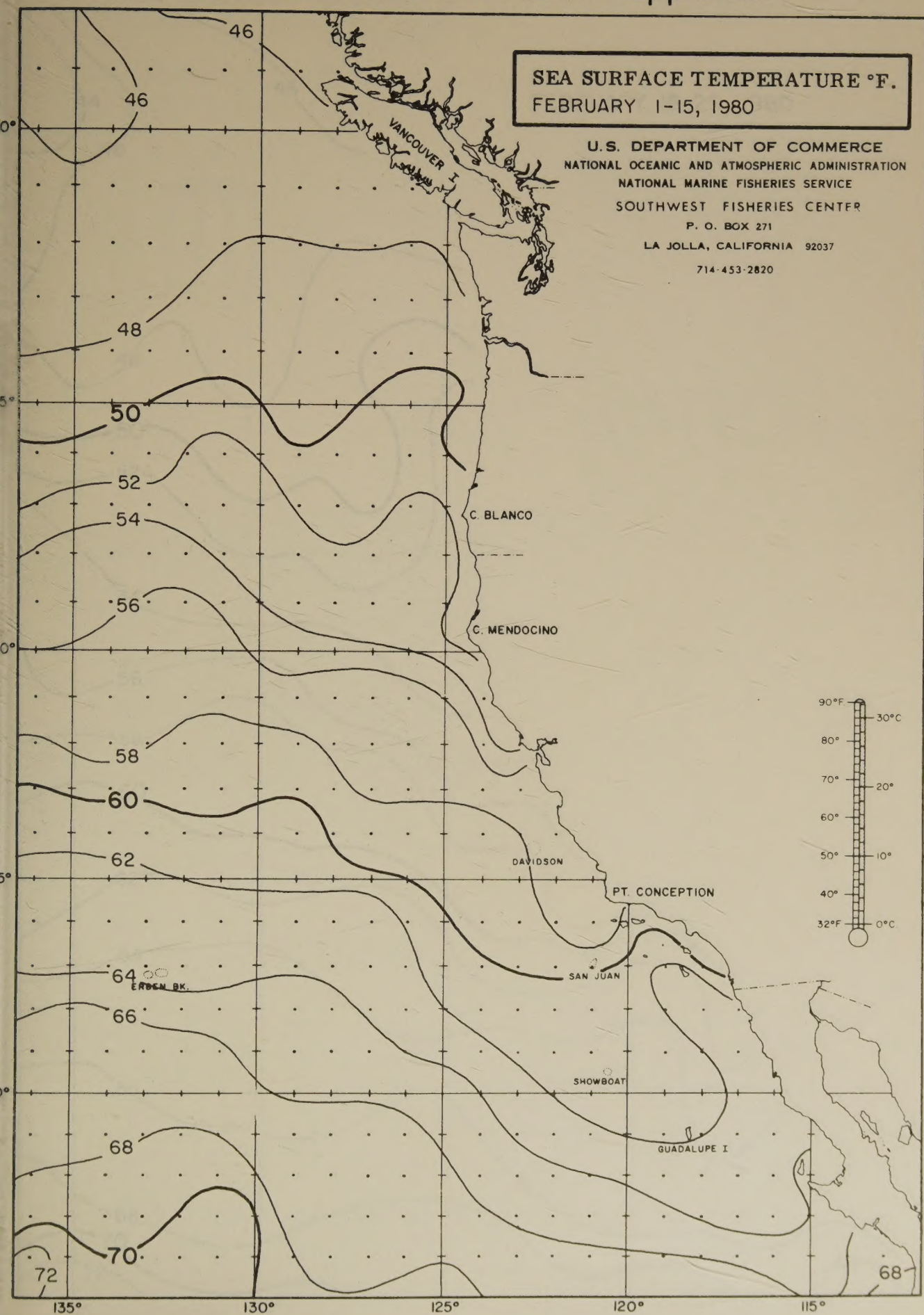
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# FISHING INFORMATION - supplement

SEA SURFACE TEMPERATURE °F.  
FEBRUARY 16-29, 1980

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